

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A method for providing custom probe arrays of biological molecules, comprising the acts of:

receiving a user selection of one or more probe set identifiers that identify one or more potential probes, and an indication from the user to share a custom probe array design with one or more additional users;

determining one or more verified probe sets of verified probes corresponding to at least one of the probe set identifiers;

generating a the custom probe array design ~~based, at least in part, upon~~ comprising the verified probe sets;

~~enabling for display to the user~~ providing a representation of ~~one or more aspects~~ of the custom probe array design to the user via one or more graphical user interfaces, wherein the one or more graphical user interfaces are enabled to receive a user selection specifying acceptance, modification, or rejection of the custom probe array design; and

providing to the user one or more probe arrays based on the custom probe array design, and responsive to the user specification of acceptance or modification, wherein at least one of the probe arrays ~~is constructed and arranged to detect~~ detects or measure any ~~one or any combination of gene expression, genotype, SNP, haplotype, or targets including antibodies, cell membrane receptors, monoclonal antibodies and antisera~~

~~reactive with specific antigenic determinants, drugs, oligonucleotides, nucleic acids, peptides, proteins, cofactors, lectins, sugars, polysaccharides, cells, cellular membranes, or organelles.~~

2. (Currently Amended) The method of claim 1, wherein:

one or more of the probe arrays is ~~constructed and arranged to~~ enabled to diagnose a disease and/or medical condition.

3. (Cancelled)

4. (Currently Amended) The method of claim 1, wherein:

the ~~one or more probe array comprises~~ arrays comprise probes capable of hybridizing with biological molecules.

5. (Currently Amended) A method for providing custom probe arrays, comprising the acts of:

receiving a user selection of one or more probe set identifiers that identify one or more potential probes, and an indication from the user to share a custom probe array design with one or more additional users;

determining one or more verified probe sets of verified probes corresponding to at least one of the probe set identifiers;

generating a the custom probe array design ~~based, at least in part, upon~~ comprising the verified probe sets;

~~enabling for display to the user~~ providing a representation of ~~one or more aspects~~  
of the custom probe array design to the user via one or more graphical user interfaces,  
wherein the one or more graphical user interfaces are enabled to receive a user selection  
specifying acceptance, modification, or rejection of the custom probe array design; and  
providing to the user one or more probe arrays based on the custom probe array  
design and responsive to the user specification of acceptance or modification.

6. (Original) The method of claim 5, wherein:

the user selection is received over the Internet.

7. (Original) The method of claim 5, wherein:

the probe set identifiers comprise sequence information.

8. (Original) The method of claim 5, wherein:

the probe set identifiers are selected by the user from a predetermined list.

9. (Currently Amended) The method of claim 8, wherein:

each item on the list corresponds to ~~either an EST, a gene, a splice variant of a~~  
~~gene, or a protein.~~

10. (Currently Amended) The method of claim 5, wherein:

the verified probe sets are determined based, at least in part, on ~~any one or any~~  
~~combination of frequency, length, or position of probe sequence repeats; probe sequence~~

~~length, thermodynamic properties, energetic parameters, or uniqueness; or one or more characteristics of target molecules specified by the user for use with the probe array.~~

11. (Currently Amended) The method of claim 5, wherein:

~~the act of generating the custom probe array design is generated further is based, at least in part, on using one or more probe array format factors.~~

12. (Original) The method of claim 11, wherein:

some or all of the probe array format factors are provided by the user and the act of receiving includes receiving user-selected probe array format factors.

13. (Currently Amended) The method of claim 11, wherein:

~~the probe array format factors include any one or any combination of the number of probe sets; a shape or one or more dimensions of a probe; one or more dimensions of active inactive areas of the probe array; one or more indicators of geographic dispersion of probe sets on the probe array; nominal, maximum or minimum number of probes or probes in a probe set representing one or more EST, gene, splice variant of a gene, or protein; substrate material or design; or design of a hybridization chamber or microfluidics body encompassing and/or associated with the probe array.~~

14. (Original) The method of claim 13, wherein:

the substrate material includes one or more of glass, silica, optical fibers, beads, resins, gels, or microspheres.

15. (Original) The method of claim 13, wherein:

the act of generating further includes modifying or rejecting one or more user-selected probe array format factors.

16. (Original) The method of claim 5, further comprising the act of:

the graphical user interface is provided over a network.

17. (Currently Amended) The method of claim 16, wherein:

the act of determining further includes modifying or rejecting one or more of the user-selected probe set identifiers; and

the act of ~~enabling for display includes enabling for display a~~ providing the representation of further includes providing one or more factors or reasons related to ~~the~~ modifying or rejecting of the user-selected probe set identifiers via the one or more graphical user interfaces.

18. (Cancelled)

19. (Currently Amended) A system for providing custom probe arrays, comprising:

an input manager ~~constructed and arranged to receive~~ that receives a user selection of one or more probe set identifiers that identify one or more potential probes, and an indication from the user to share a custom probe array design with one or more additional users;

a gene or EST verifier ~~constructed and arranged to determine~~ that determines one or more verified probe sets of verified probes corresponding to at least one of the probe set identifiers;

a probe array generator ~~constructed and arranged to generate~~ that generates a the custom probe array design ~~based, at least in part, upon~~ comprising the verified probe sets; and

a user data processor ~~constructed and arranged to enable for display~~ that provides a representation of ~~one or more aspects of~~ the custom probe array design to the user via one or more graphical user interfaces, wherein the one or more graphical user interfaces ~~that are further~~ enabled to receive a user selection specifying acceptance, modification, or rejection of the custom probe array design, and ~~further is constructed and arranged to provide to the user~~ one or more probe arrays are provided to the user based on a user selection specifying acceptance or modification of the custom probe array design.

20. (Original) The system of claim 19, wherein:

the user selection is received over the Internet.

21. (Original) The system of claim 19, wherein:

the probe set identifiers comprise sequence information.

22. (Original) The system of claim 19, wherein:

the probe set identifiers are selected by the user from a predetermined list.

23. (Currently Amended) The system of claim 22, wherein:

each item on the list corresponds to ~~either an EST, a gene, a splice variant of a gene, or a protein.~~

24. (Currently Amended) The system of claim 19, wherein:

the verified probe sets are determined based, at least in part, on ~~any one or any combination of frequency, length, or position of probe sequence repeats; probe sequence length, thermodynamic properties, energetic parameters, or uniqueness; or one or more characteristics of target molecules specified by the user for use with the probe array.~~

25. (Currently Amended) The system of claim 19, wherein:

the probe array generator is further ~~constructed and arranged to generate~~ generates the custom probe array design ~~based, at least in part, on using one or more~~ probe array format factors

26. (Currently Amended) The system of claim 25, wherein:

the input manager is further ~~constructed and arranged to receive~~ receives some or all of the probe array format factors from the user, including one or more user-selected probe array format factors.

27. (Currently Amended) The system of claim 25, wherein:

the one or more probe array format factors include ~~any one or any combination of the number of probe sets; a shape or one or more dimensions of a probe; one or more~~

~~dimensions of active or inactive areas of the probe array; one or more indicators of geographic dispersion of probe sets on the probe array; nominal, maximum or minimum number of probes or probes in a probe set representing one or more EST, gene, splice variant of a gene, or protein; substrate material or design; or design of a hybridization chamber or microfluidics body encompassing or associated with the probe array.~~

28. (Original) The system of claim 27, wherein:

the substrate material includes one or more of glass, silica, optical fibers, beads, resins, gels, or microspheres.

29. (Currently Amended) The system of claim 27, wherein:

the probe array generator is further ~~constructed and arranged to modify~~ modifies or ~~reject~~ rejects the one or more user-selected probe array format factors.

30. (Original) The system of claim 19, wherein:

the graphical user interface is provided over a network.

31. (Currently Amended) The system of claim 30, wherein:

the gene or EST verifier is further ~~constructed and arranged to modify~~ modifies or ~~reject~~ rejects one or more of the user-selected probe set identifiers; and

the user data processor is further ~~constructed and arranged to enable for display~~ provides a representation of one or more factors or reasons related to the modifying or



rejecting of the user-selected probe set identifiers via the one or more graphical user interfaces.

32. (Cancelled)

33. (Currently Amended) A genomic portal system for providing custom probe arrays, comprising:

an application server comprising an input manager ~~constructed and arranged to receive that receives~~ a user selection of one or more probe set identifiers that identify one or more potential probes and an indication from the user to share a custom probe array design with one or more additional users, a gene or EST verifier ~~constructed and arranged to determine that determines~~ one or more verified probe sets of verified probes corresponding to at least one of the probe set identifiers, a probe array generator ~~constructed and arranged to generate that generates a the~~ custom probe array design ~~based, at least in part, upon comprising~~ the verified probe sets, and a user data processor ~~constructed and arranged to enable for display, that provides a representation to the user of one or more aspects of~~ the custom probe array design via one or more graphical user interfaces, wherein the one or more graphical user interfaces that are further enabled to receive a user selection specifying acceptance, modification, or rejection of the custom probe array design; and

a network server comprising an output manager ~~constructed and arranged to provide that provides~~ to the user one or more probe arrays based on the custom probe array design.

34. (Currently Amended) The system of claim 33, wherein:

the network server further comprises an input manager ~~constructed and arranged~~  
~~to receive~~ that receives user input; and

the system further comprises one or more user computers ~~constructed and~~  
~~arranged to~~ that enable a user to provide the user selection of one or more probe set  
identifiers to the network server.

35. (Original) The system of claim 33, wherein:

the output manager identifies the one or more probe arrays to the user via the  
internet.

36.-83. (Cancelled)

84. (Currently Amended) A method for providing custom probe arrays, comprising  
the acts of:

receiving a user selection of one or more probe set identifiers that each identify a  
plurality of potential probes and an indication from the user to share a custom probe array  
design with one or more additional users;

determining verified probe sets of verified probes corresponding to at least one of  
the probe set identifiers;

generating a the custom probe array design ~~based, at least in part, upon~~  
comprising the verified probe sets; and

providing to the user one or more probe arrays based on the custom probe array design.